

Amendments in the specification:

1) Please replace the paragraph beginning on line 12 of page 6 with the following paragraph:

Cap layer **116** typically includes Ta. AF layer **114** is typically made of a material containing Mn. Ferromagnetic pinned layer **112** typically includes Co or Cobalt alloys. Nonmagnetic spacer layers **110** and **104** are typically made of Cu, Ag, Au or their alloys. Nanolayer **108** typically includes Co or cobalt alloys. Ferromagnetic free layer **106** typically includes a material containing Ni, Fe, Co or alloys of Ni, Fe and Co such as NiFe, NiCo, NiCoFe and FeCo. Underlayer ~~102 is typically made of a metal, such as Ta, Zr or Cu, or metal oxide, such as NiO or NiMnO.~~ Substrate ~~118 is typically made of Al₂O₃-TiC.~~

Comments on amendments to the claims

New independent claim 34 is presented for prosecution. No additional fees are required to present this claim, since non-elected independent claim 13 is canceled. Support for claim 34 is present in the specification as filed, for example, on Fig. 1 and from line 32 of page 5 to line 21 of page 6 of the specification. Thus, claim 34 introduces no new matter.

Minor informalities in claim language that have been noticed at this time are hereby corrected by amendment. No new matter is introduced thereby.

Claim 1 is currently amended to include the limitation of claim 4. Claim 22 is currently amended to include the limitation of claim 25.

Comments on amendments to the specification

Minor errors in the specification that have been noticed at this time are hereby removed by amendment. No new matter is introduced.

DETAILED RESPONSE

paragraphs 1-3: restriction

Claims 1-12 and 22-33 drawn to the invention of group II are elected for prosecution, consistent with the election made without traverse on 3/1/2002 by telephone. Claims 13-21 are withdrawn and are also canceled without prejudice.

paragraphs 4-5: claim rejections under 35 USC 102

Claims 1-3 and 22-24 stand rejected under 35 USC 102(e) as anticipated by US 6,292,336, hereinafter Horng.

Claim 1 is currently amended to include the limitation of allowable claim 4. Claim 22 is currently amended to include the limitation of allowable claim 25. These amendments are believed to place claims 1-3 and 22-24 in condition for allowance.

With respect to new claim 34, it recites a limitation to "a second nonmagnetic spacer layer disposed between said first underlayer and said free layer" which is neither taught nor suggested by Horng. The NiO layer of Horng makes physical contact with the free layer, as shown on Fig. 1 of Horng. Furthermore, it would not be obvious to insert a spacer layer as claimed into the arrangement of Horng, since such modification would alter the operating principles of Horng. More specifically, the NiO layer in Horng is regarded as providing "for enhanced specular electron scattering" (line 3 of column 8). Since these electrons are in the free layer, Horng is referring to properties of the free layer-NiO layer interface.

paragraph 6: allowable subject matter

Claims 4-12 and 25-33 stand objected to for dependence on a rejected claim, but are otherwise allowable.

Claims 4 and 25 are hereby canceled. The above amendments to claims 1 and 22 are believed to overcome this objection to claims 5-12 and 26-33.